

VLASOVA, E. S.

USSR

✓High molecular compounds. LXVII. Properties of dicarboxylic polyesters and of some polymethylene glycols. V. V. Korshak, S. V. Vinogradova, and E. S. Vlasova (*Dokl. Akad. Nauk SSSR, Old. 4th. Ser.* 1954, **1038-1039**). The polyesters of ethylene, hexamethylene and decamethylene glycols with oxalic, malonic, succinic, glutaric, adipic, pimelic, azelaic and sebacic dicarboxylic acids were prepared. The properties of 27 thus synthesised polyesters are summarized in a table. It was found that dicarboxylic polyesters with an even number of C atoms have a higher m.p. and lower solubility in alcohol than have both adjacent polyesters with odd numbers of C atoms. Further investigations revealed that the properties of dicarboxylic polyesters depended on the balance and distribution of carbonyl and methylene groups, i.e., increasing numbers of methylene groups in the initial glycol result in higher m.p. of the polyester, whilst a higher proportion of carbonyl groups in the initial acid tend to lower the m.p.

62

2

VLASOVA, E. S.

USCR/ Chemistry - High molecular compounds

Card 1/1 Pub. 40 - 21/27

Authors : Korshak, V. V.; Vinogradova, S. V.; and Vlasova, E. S.

Title : High molecular compounds. Part 68

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1097-1102, Nov-Dec 1954

Abstract : The derivation of poly esters of diethylene glycol, triethylene glycol and propylene glycol with dicarboxylic acids is described. The effect of the structure of the basic substances on the melting point and solubility of the synthesized esters was evaluated. The effect of ethereal oxygen and side chain on the properties of poly esters was investigated and it was found that the introduction of a methyl side group into the poly ester molecule produces an effect analogous to the introduction of three or four ether bonds which sharply reduces the crystallinity of the ester and the melting point and increases the solubility. Three USSR references (1953 and 1954). Table; graphs.

Institution : Acad. of Sc. USSR, The N. D. Zelinskiy Institute of Organ. Chemistry

Submitted : November 5, 1953

*VLASOVA, E.S.*

USSR/Chemistry - High molecular compounds

Card<sub>1/2</sub> Pub. 40 - 20/27

Authors : Korshak, V. V.; Vinogradova, S. V.; and Vlasova, E. S.

Title : High molecular compounds. Part 67

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1089-1096, Nov-Dec 1954

Abstract : The characteristics of poly esters of dicarboxylic acids and certain polymethylene glycols were determined by such factors as the change in total number of methylene groups during the conversion from one homologous group member into another and by the mutual orientation of bonds, which also varies during change from acids with even number of atoms to uneven acids.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Institute of Organ. Chemistry

Submitted : November 5, 1953

Periodical : Izv. Ak. Nauk. SSSR. Khim. nauk 6. 1957-1958, Nov-Dec 1957

Part : 1

Abstract : Polyesters of the type  $\text{R-O-CO-R}'$  were synthesized from the corresponding acids and alcohols. The solubility of the polyesters in benzene and alcohol was established. It was further established that the solubility of the polyesters in benzene and alcohol was determined by the nature of the R and R' groups.

VLASOVA, Ye. S.  
KORSHAK, V.V.; VINOGRADOVA, S.V.; VLASOVA, Ye.S.

From the field of high molecular weight compounds. Report no. 68.  
Effect of the ester oxygen and of the side chain upon the properties  
of polyesters. Izv.AN SSSR. Otd.khim.nauk no.6:1097-1102 N-D '54.  
(MLBA 8:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk  
SSSR.

(Esters) (High molecular weight compounds)

KORSHAK, V.V.; VINOGRADOVA, S.V.; VLASOVA, E.S.

Dependence between the properties and the structure of chains  
in the series of polyesters of aliphatic dicarboxylic acids  
and glycols. Dokl. AN SSSR 94 no.1:61-64 Ja '54. (MLRA 7:1)

1. Chlen-korrespondent Akademii nauk SSSR (for Korshak).
2. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii  
nauk SSSR. (Esters)

ROZENBERG, A.Ya.; VLASOVA, G.N.

Determining sulfate ions by direct titration with the alizarin-S  
indicator. Khim.volok. no.4:67-68 '59. (MIRA 13:2)

1. Nauchno-issledovatel'skaya laboratoriya Mogilevskogo  
zavoda.  
(Sulfates)

VASIL'YEVA, M.A.; VLASOVA, I.I.

Some problems in compiling an adjusted map of magnetic anomalies  
of the U.S.S.R. at a scale of 1:1,000,000. Razved.i prom.geofiz.  
no.44:111-116 '62. (MIRA 15:7)

(Magnetism, Terrestrial--Maps)



S/169/62/000/007/065/149  
D228/D307

AUTHORS: Vasil'yeva, M. A., Vlasova, I. I. and Rymanov, V. M.

TITLE: Some problems in the compilation of a composite small-scale map of the USSR's magnetic anomalies (Discourse theses)

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1962, 30, abstract 7A199 (V sb. Sostoyaniye i perspektivy razvitiya geofiz. metodov poiskov i razvedki polezn. iskopayemykh, M., Gostoptekhizdat, 1961, 516)

TEXT: Defects in the method of regional surveys were ascertained when compiling a composite magnetic anomaly map on a scale of 1:1,000,000 for the eastern half of the USSR's European part. Recommendations are given for the method of surveys, their tying in to absolute values, and for the preparation of composite maps. It is expedient to create an All-Union reference aeromagnetic network. ✓  
/Abstracter's note: Complete translation. 7

Card 1/1

CHIRESHKINA, N.M., kand.med.nauk; MAKAROVA, V.A.; VLASOVA, I.N.

Use of phenoxymethylpenicillin (penicillin V) in scarlet fever.  
Pediatriia no.2:73-76 '62. (MIRA 15:3)

1. Iz kliniki detskikh bolezney (dir. - deystvitel'nyy chlen  
AMN SSSR prof. Yu.F. Dombrovskaya) i Moskovskogo meditsinskogo  
instituta imeni I.M. Sechenova na baze Gorodskoy infektsionnoy  
bol'nitsy No.2 (glavnyy vrach A.M. Pyl'tsova).  
(SCARLET FEVER) (PENICILLIN)

CHIRESHKINA, N.M., kand.med.nauk; MAKAROVA, V.A.; VLASOVA, I.N.

Use of phenoxymethylpenicillin (penicillin V) in scarlet fever.  
Pediatriia no.2:73-76 '62. (MIRA 15:3)

1. Iz kliniki detskikh bolezney (dir. - deystvitel'nyy chlen  
AMN SSSR prof. Yu.F. Dom'rovskaya) i Moskovskogo meditsinskogo  
instituta imeni I.M. Sechenova na baze Gorodskoy infektsionnoy  
bol'nitsy No.2 (glavnyy vrach A.M. Pyl'tsova).  
(SCARLET FEVER) (PENCILLIN)

SOBOLEV, V.R.; VLASOVA, I.V.; KASTRUBIN, E.M.

Accelerated determination of the sensitivity of various groups of micro-organisms to antibiotics with the aid of phase contrast microscopy. Antibiotiki 9 no.12:1073-1077 D '64. (MIRA 18:7)

1. Kafedra mikrobiologii (zav. - deystvitel'nyy chlen AMN SSSR, prof. Z.V.Yermol'yeva) Tsentral'nogo instituta usovershenstvovaniya vrachey, Moskva.

5(2)

AUTHORS:

Petrov, D.A., Vlasova, I.V.,  
Zimina, G.V.

05863

SOV/78-4-11-16/50

TITLE:

The Solubility of Iron- and Calcium Chlorides in Trichlorosilane

PERIODICAL:

Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 11,  
pp 2500-2501 (USSR)

ABSTRACT:

The trichlorosilane  $\text{SiHCl}_3$  produced by chlorinating commercial silicon serves as initial product of semiconductor silicon. The impurities (Ca, Mg, Al, Fe, Cu, Ti, B, etc.) are included in the chlorination. In order to make sure whether it is possible to remove the impurities from the trichlorosilane, the authors investigate the solubility of  $\text{FeCl}_3$  and  $\text{CaCl}_2$  in trichlorosilane by means of the radioactive isotopes  $\text{Fe}^{59}$  and  $\text{Ca}^{45}$ . Figure 1 shows that  $\text{FeCl}_3$  is very slowly dissolved in trichlorosilane. Saturation at  $18^\circ$  is attained only after 4 h. The increasing solubility of  $\text{FeCl}_3$  in trichlorosilane at rising temperature is shown in figure 2.

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The Solubility of Iron- and Calcium Chlorides  
in Trichlorosilane

05863

SOV/78-4-11-16/50

Analysis has shown only a small degree of solubility at 18°C; it amounts to  $1.3 \cdot 10^{-4}$  g-mol/l for  $\text{FeCl}_3$  and to less than  $4 \cdot 10^{-6}$  g-mol/l for  $\text{CaCl}_2$ . The content of  $\text{FeCl}_3$  is reduced by at least two orders by a single rectification of trichlorosilane saturated with  $\text{FeCl}_3$ . There are 2 figures and 5 references, 4 of which are Soviet.

SUBMITTED: July 10, 1958

Card 2/2

SOBOLEV, V.R.; VLASOVA, I.V.

Rapid method for determining staphylococcal sensitivity to  
antibiotics. Lab.delo 8 no.5:40-42 My '62. (MIRA 15:12)

1. Kafedra mikrobiologii (zav. - chlen-korrespondent AMN SSSR  
prof. Z.V.Yermol'yeva) TSentral'nogo instituta usovershenstvo-  
vaniya vrachey (dir. M.D.Kovrigina), Moskva.  
(STAPHYLOCOCCUS) (ANTIBIOTICS)

SOBOLEV, V.R.; VLASOVA, I.V.

Comparative study of three methods of determining the sensitivity of the enteric group of bacteria to antibiotics of the tetracycline series. Lab.delo 7 no.9:46-48 S '61. (MIRA 14:10)

1. Kafedra mikrobiologii (zav. - chlen-korrespondent AMN SSSR prof. Z.V.Yermol'yeva) i Tsentral'nogo instituta usovershenstvovaniya vrachey.

(INTESTINES--MICROBIOLOGY)

(ANTIBIOTICS)



VLASOVA, I.V.

Comparative study of three methods for determining bacterial sensitivity to antibiotics. Antibiotiki 6 no.6:513-516 Je '61. (MIRA 15:1)

1. Kafedra mikrobiologii (zav. - chlen-korrespondent AMN SSSR prof. Z.V. Yermol'yeva) TSentral'nogo instituta usovershenstvovaniya vrachey.  
(ANTIBIOTICS) (BACTERIA, EFFECT OF DRUGS ON)

VLASOVA, I.V.; DENISOV, A.F.; ZIMINA, G.V.; MARUNINA, N.I.; NALIMOV, V.V.;  
SUKHOV, G.V.

Application of consecutive analysis to radiometric measurements.  
Zav.lab. 27 no.10:1261-1264 '61. (MIRA 14:10)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut  
redkometallicheskoy promyshlennosti.  
(Radioisotopes).

VLASOVA, I.V.; ZIMINA, G.V.; STEPINA, S.B.; MOISEVICH, O.P.; PIYUSHEV, V.Ye.

Solubility of potassium, rubidium, and cesium bromides in  
hydrobromic acid. Zhur. neorg. khim. 9 no.8:2040-2041 Ag '64.  
(MIRA 17:11)

VLASOVA, K.D.; BEZKIMEL'NITSINA, I.A.; MEZENTSEVA, A.G.; SIROTINA, O.S.;  
TAFINTSEVA, I.A.

Clinical statistical analysis of vascular lesions of the brain  
according to data of Voronezh polyclinics. Trudy Vor. med. inst.  
51:38-42 '63. (MIRA 18:10)

SIHOTINA, G.S.; VLASOVA, K.D.

Clinical aspects and differential diagnosis of subarachnoid  
hemorrhages and hemorrhagic meningencephalitis. Trudy Vor. med.  
Inst. 51:25-31 '43. (MIRA 18:10)

1. Kafedra nervnykh bolezney Vorenezhskogo meditsinskogo instituta.

VLASOVA, K.K.

Sources of the blood supply and distribution of the vessels within  
the muscles of the thenar eminence. Trudy KirgNOAGE no.2:199-200  
'65. (MIRA 18:11)

1. Iz kafedry normal'noy anatomii (zav. - dotsent F.P.Plyakin)  
Semipalatinskogo meditsinskogo instituta.

85429

S/081/60/000/016/003/012  
A006/A001

5.1196 also 2209

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 16, p. 73, # 64650

AUTHORS:

Shmonina, V.P., Vlasova, K.M., Sokol'skiy, D.V.

TITLE:

Catalytic Reduction of Aromatic Nitrocompounds. Information IX.  
The Effect of Ethyl Group on Reduction Kinetics of the Nitrogroup  
in Skeleton Nickel and Platinum

PERIODICAL:

Tr. In-ta khim. nauk. AN KazSSR, 1959, Vol. 5, pp. 72-80

TEXT:

The effect of the ethyl radical introduced into the composition of a nitrocompound, on the reduction rate of the nitrogroup, depends on a series of factors, first of all on the catalyst nature. When conducting the process on skeleton Ni, the introduction of an ethyl radical entails an accelerated reaction. The ethyl group speeds up the reaction more in the ortho-state than in the para-state. This is explained by the fact that the introduction of the ethyl group causes a reduced adsorption of the nitrocompound, thus increasing the hydrogen access to the catalyst surface. This redistribution of the catalyst surface under conditions, limiting the reaction by hydrogen activation, has a favorable effect.

Card 1/2

85429

S/081/60/000/016/003/012  
A006/A001

Catalytic Reduction of Aromatic Nitrocompounds. Information IX. The Effect of the Ethyl Group on Reduction Kinetics of the Nitrogroup in Skeleton Nickel and Platinum

on the process rate. A slight reduction of the adsorption of a nitrocompound on Pt, occurring during the introduction of the ethyl group in the para-state, somewhat accelerates the reaction, whereas a further decrease of adsorption occurring by the introduction of a substitute into the ortho-state, inhibits the reaction. Information VI see RZhKhim. 1957, No. 6, # 18638. X

The authors' summary

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2



SHMONINA, V.P.; VLASOVA, K.M.; SOKOL'SKIY, D.V.

Catalytic reduction of aromatic nitro compounds. Report No.14.  
Trudy Inst.khim.nauk AN Kazakh.SSR 5:72-80 '59. (MIRA 13:6)  
(Nitro compounds)  
(Catalysts, Nickel)  
(Platinum)

V. L. ASOVA, K. M.

PHASE I BOOK EXPLOITATION SOV/3537

Academy nauk Kirgizskoy SSR. Institut khimicheskikh nauk  
Trudy, t. 5 (Transactions of the Institute of Chemical Sciences,  
Kirgiz SSR, Academy of Sciences, Vol. 5) Alma-Ata, Izd-vo  
Akademii nauk Kirgizskoy SSR, 1959. 134 p. 1,000 copies  
printed.  
Ed.: M. D. Zhukova; Tech. Ed.: Z. P. Morokina; Editorial Board of  
Series: D. V. Sokol'skiy (Resp. Ed.), V. G. Gutsalyuk, and  
B. V. Savorov (Resp. Secretary).

PURPOSE: This collection of articles is intended for personnel of  
scientific research laboratories, laboratories of industrial  
enterprises, and faculty members of schools of higher education.

COVERAGE: The collection reviews problems of liquid-phase catalytic  
hydrogenation to unsaturated bonds of various types, adsorption of  
generation of unsaturated bonds of various types, adsorption of  
hydrogen on different catalysts, chromatographic separation of  
mixtures, and the effect of halogen salts of alkali metals on the  
rate of hydrogenation reactions promoted by various skeleton  
catalysts are described. Conditions of catalytic hydrogenation  
of natural fat, sunflower oil, and such synthetic products as  
esters of high-molecular fatty acids are set out. Dehydrogenation  
of the butene fraction carried out in combination with isomeri-  
zation is analyzed. Principles of selecting catalysts and re-  
generation of catalysts are reviewed and the formation of active  
polymerizable on metal catalysts is explained. Each article presents  
conclusions drawn on the basis of experimental findings.  
References accompany most of the articles.

- Shonina, V. P., K. M. Khasanova, and D. V. Sokol'skiy. Chromato-  
graphic Separation of Mixtures of Nitrobenzene-Aniline Products 28  
Golodova, I. S., and D. V. Sokol'skiy. Study of Hydrogenation Reac-  
tions of Natural Fats and Their Simplest Synthetic Analogues, the  
Esters of High-Molecular-Fatty Acids 36  
Golodova, I. S., D. V. Sokol'skiy, and Ye. A. Polivachova. Kinetics  
and Mechanism of Hydrogenation of Sunflower Oil in Solution 44  
Luk'yanov, A. T. Problem of Formation of Adsorption Potentials  
on Metal Catalysts 50  
Yerphanov, A. I., and D. V. Sokol'skiy. Potentiometric Study of  
Hydrogenation of Benzoinetone Over Skeleton Ni/Ni Catalysts 56  
Bavilina, L. A., O. V. Pavlova, Z. P. Frusakova, and D. V. Sokol's-  
kiy. Dehydrogenation of the Commercial Fraction of n-Dodecane  
Over Oxide Catalysts 64  
Shonina, V. P., K. M. Khasanova, and D. V. Sokol'skiy. Catalytic Re-  
duction of Aromatic Nitro-Compounds. Part II 72  
Pis. R. M. (Moskovskiy Institut tonkoy khimicheskoy tekhnologii  
Imeni M. V. Lomonosova--Moscow Institute of Fine Chemical Tech-  
nology, Imeni M. V. Lomonosov). Some Principles of Selecting Cata-  
lysts for Liquid-Phase Hydration of Acetylene to Acetaldehyde 81  
Shestakov, M. I., and D. V. Sokol'skiy. Some Methods of Reactivating  
the Skeleton Nickel Catalyst 92  
Shestakov, M. I., and D. V. Sokol'skiy. Hydrogenation of Acetylene  
in the Liquid Phase 97  
Sokol'skiy, D. V., and L. P. Dunaeva. Hydrogenation of a Sodium  
Salt of Propionic Acid Over Platinum 100  
Sokol'skiy, D. V., and D. V. Sokol'skiy. Hydrogenation of Cinnamal-  
dehyde (Styrene) 110  
Card 4/5

S/191/63/000/001/004/017  
B101/B186

AUTHORS: Vlasova, K. N., Antropova, N. I., Akutin, M. S.,  
Samokhvalov, A. V., Sharova, A. V.

TITLE: Caprolon

PERIODICAL: Plasticheskiye massy, no. 1, 1963, 18-19

TEXT: Large machine parts ranging up to 600 mm diameter and 50 kg weight were experimentally produced at NIIPM by polymerizing caprolactam. Sodium metal,  $K_2O$ , or  $Na_2O$  were used at initiators, and acetyl caprolactam, benzoyl chloride,  $CO_2$ , etc., as activators. These plastics, caprolon B(B) and caprolon C(S), have the following properties: density 1.15-1.16  $g/cm^3$ ; impact strength 110-160  $kg \cdot cm/cm^2$ ; bending strength 1250-1500  $kg/cm^2$ ; elastic modulus in tension 20,000-23,000  $kg/cm^2$ ; Brinell hardness 20-26  $kg/mm^2$ ; water absorption in 24 hrs 1.5-2.0%; intrinsic viscosity 2.0-2.5; content of water-soluble substances 5-8%; shrinkage in polymerization 4-5%. Caprolon gears bearing bushings for machine tools, and engine gear units have been tested, some of them for 10-18 months. Attempts are

Card 1/2

Caprolon

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B101/B186

being made to produce specimens of 2 m diameter and to produce  
caprolon by a continuous process. There is 1 figure.

Card 2/2

45656

S/191/63/000/003/005/022  
B101/B186

15.8080

AUTHORS:

Levantovskaya, I. I., Yazvikova, M. P., Dobrokhotova, M. K.,  
Kovarskaya, B. M., Vlasova, K. N.

TITLE:

Thermooxidative degradation and stabilization of some poly-  
amides

PERIODICAL: Plasticheskiye massy, no. 3, 1963, 19 - 23

TEXT: This is a study of the kinetics of oxidation of polycaproamide (I),  
polyamide 68 (II) (a polycondensate of the SH salt), and copolymer 548 (III)  
(polycondensate of hexamethylene diamine adipate, hexamethylene diamine  
sebacinate, and  $\epsilon$ -caprolactam). The decrease in oxygen pressure was deter-  
mined at initial  $P_{O_2}$  = 200 mm Hg and 130 - 200°C or at 200°C and changing

$P_{O_2}$ . The kinetic curves of oxidation were s-shaped especially at low  
temperatures or low  $P_{O_2}$ . The induction period was 10-20 min. A slower

drop in pressure at a longer oxidation time is explained by liberation of  
Card 1/2

Thermooxidative degradation ...

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B101/B186

gaseous oxidation products proved chromatographically in (I). At 130° and P<sub>O</sub><sub>2</sub> = 200 mm Hg, O<sub>2</sub> was noticeably adsorbed by I and II, the stability of I being larger than that of II. III was oxidized more easily than I and II. The effect of the following stabilizers was tested; 0.2% KI; 0.2% copper naphthenate; 0.1% KI + 0.1% copper naphthenate; 0.5% diphenyl amine; N-iso-propyl-N'-phenyl-p-phenylene diamine; N,N'-di-sec-octyl-p-phenylene diamine; N,N'-di-sec-nonyl-p-phenylene diamine; N,N'-di-β'-naphthyl-p-phenylene diamine; phenyl-β-naphthyl amine (Neozone D); N-phenyl-n'-cyclohexyl-p-phenylene diamine; α- and β-naphthol; 2,6-di-tert-butyl-4-methyl phenol (ionol); 2,2-methylene-bis-(4-methyl-6-tert-butyl-phenol (2246) propyl gallate; phenol styrene condensation product; mercaptobenzimidazole; tri-nonyl triphenylene phosphite; and polyphosphites as well as the photo-stabilizers 2-hydroxy-4-methoxy-benzophenone and 2,2'-hydroxy-5'-methyl-phenyl benzo triazole. Results: Aromatic amines were more effective than phenols and naphthols. N,N'-di-β'-naphthyl-p-phenylene diamine was most active for I and II; Neozone D, however, for II. The mixture containing 0.1% KI and 0.1% copper naphthenate had a strong protective effect in I and II. There are 9 figures.

Card 2/2

Apr. 10, 1954  
Organic Chemistry

for the formation of a resinous product is the result of further polymerization, which is much slower than the 1st phase. The double bond of II is unaffected during the reaction but at high temperature a slow change to fumaric acid occurs. Heating of I and II in ampoules at 140° yields intermediate products, which at 160° yield the final product, which is a resinous solid.

FD-170

USSR/Chemistry - Plastics

VLASOVA, K.N.

Card 1/1 : Pub. 50-5/25

Author : Vlasova, K. N.

Title : Polyamide resins and their industrial application

Periodical : Khim. prom., No 8, pp 470-77 (22-29), Dec 1954

Abstract : Outlines in detail the chemistry, physical properties, and uses of polyamide resins. The article, which is based mainly on foreign publications, gives information on the use of polyamide resins in bearings, modification of resins of this type to make them plastic, thermosetting compatible with other resins, etc. The section on the synthesis of polyamide resins is based principally on USSR work. Twenty eight references, 7 of them USSR, all since 1940. Two graphs, 2 figures, 7 tables.

Institution : Scientific Research and Planning Institute of Plastics

Submitted :



*VLASOVA, K.N.*

PETROV, G.S., doktor tekhnicheskikh nauk, professor; VLASOVA, K.N.,  
kandidat tekhnicheskikh nauk; RODIVILOVA, L.A.; ~~SHCHIDINE, T.Z.~~,  
inzhenier; ZAVEL'GEL'SKIY, L.M., inzhener

New shoe adhesive based on polyamide resins. Leg.prom.15 no.8:  
31-33 Ag '55. (MLRA 8:10)

1. Mladshiy nauchnyy sotrudnik Nauchno-issledovatel'skogo insti-  
tuta plasticheskikh mass. (for Rodivilova)  
(Shoe industry) (Resins, Synthetic)

VLASOVA, K. N., PETROV, G. S., and RODEVILOVA, L. A.

"Synthesis of methylolpolyamide resins," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Polymer Research Inst.

B-3,084,395

VLASOVA, K.N.; RUDYK, M.A.; NOSOVA, L.A.; PICHUGIN, A.N.; IVANOVA, G.P.

Antifriction compositions based on filled polyamides. Plast.massy  
no.4:33-37 '64. (MIRA 17:4)

5(1,3)

AUTHORS:

Rodivilova, L. A., Vlasova, K. N.,  
Petrov, G. S.

SOV/153-58-4-16/22

TITLE:

Methylol Polyamide Resins (Metilolpoliamidnyye smoly)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya  
tekhnologiya, 1958, Nr 4, pp 98 - 105 (USSR)

ABSTRACT:

Polyamide resins are only little used as glues because of their insufficient adhesion to various materials. As the authors believe that the introduction of polar groups into the chain of the polymer macromolecule would improve the adhesion, they followed the way of treating high-molecular polyamides with paraformaldehyde to produce the resins mentioned in the title. This idea is not new (Ref 1). The authors chose an other way than the patent owners (Ref 1). They used alcohol-soluble mixed polyamide resins of the binary and ternary system. They succeeded in producing a thermoreactive polyamide with good adhesion properties, which makes possible its use as a glue. The produced polyamide is also suited for the production of films. Its physico-

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Methylol Polyamide Resins

SOV/193-58-4-16/22

mechanical properties are given in the tables 2 and 3. Optimum production conditions of methylol polyamide were determined; formaldehyde and alcohol concentration, duration of the condensation, and nature of the catalyst (formic acid). It was proved that besides the formation of polar methylol groups ( $-\text{CH}_2\text{OH}$ ) also methoxy-ethyl groups ( $-\text{CH}_2\text{OC}_2\text{H}_5$ ) are formed. The ratio between those groups depends on the amount of the reacting component as well as on the nature of the catalyst. In the methylol polyamide glue PFE -2/10 there are 4.5-5% methylol groups and 3.5-4% methoxy-ethyl groups. Recalculated with respect to the percentage of the substituted amide groups this amounts to 42.5-49.7%. It may be assumed that hardening takes place due to the formation of methylene and methylene-ether bridges. The reaction velocity of the hardening of methylol polyamides in dependence on the temperature and on the catalysts was investigated. The properties of the hardened methylol polyamide resins are essentially different from those not hardened. The former have a

Card 2/3

Methylol Polyamide Resins

SOV/153-58-4-16/22

heat resistance of more than 150° and are resistant to boiling water and alcohols. The glue in question, PFE -2/10, is industrially produced and is used in polygraphic, food and other industries. There are 7 figures, 4 tables, and 3 references, 1 of which is Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut plastmass (Scientific Research Institute of Plastics)

SUBMITTED: October 23, 1957

Card 3/3

VIASOVA, K.N.; MOROZOV, N.A.; DOBROKHOTOVA, M.K.; NOSOVA, L.A.;  
IVANOVA, G.P.

Finely dispersed polyamides and antifriction coatings made from  
same. Plast.massy no.1:14-16 '64. (MIRA 17:6)

ACCESSION NR: AP4039953  
S/0191/64/Q00/006/0062/0062

AUTHOR: Dobrokhotova, M. L.; Vlasova, K. N.; Dukor, A. A.;  
Antropova, N. I.

TITLE: SN Caprolon

SOURCE: Plasticheskiye massy\*, no. 6, 1964, 62

TOPIC TAGS: polyamide, caprone, Caprolon, glass fabric, reinforced  
Caprolon, Caprolon SN

ABSTRACT: The mechanical and antifriction properties of Caprolon surpass those of caprone and other polyamides. Stronger Caprolon material can be made by reinforcement with glass fabric. Polymerization in the presence of glass fabrics requires special (non-identified) catalysts and activators to control the process, depending on the thickness of the glass-reinforced plastic and the glass content of the material. The glass fabric is subjected beforehand to a special (unspecified) treatment. SN caprolon with a glass fabric content

Card 1/2



ACCESSION NR: AP4039953

of up to 65% has the following properties: impact strength,  
250—350 kg/cm<sup>2</sup>; bending strength, 3100—3800 kg/cm<sup>2</sup>; modulus of  
elasticity in bending,  $1.5 \times 10^4$  kg/cm<sup>2</sup>.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: MT

DATE ACQ: 24Jun64

NO REF SOV: 005

ENCL: 00

OTHER: 000

Card 2/2

ACCESSION NR: AP4043321

8/0191/64/000/008/0018/0019

AUTHOR: Vlasova, K. N.

TITLE: Catalytic polymerization of caprolactam

SOURCE: *Plasticheskiye massy\**, no. 8, 1964, 18-19

TOPIC TAGS: polymerization, caprolactam, catalytic polymerization, kaprolon V, polycaproatamide, nylon, acetylcaprolactam, plastic gear

ABSTRACT: A new method was developed for the catalytic polymerization of caprolactam directly in the mold at lower temperatures. By this method, products of almost any weight can be obtained in less than three hours with a minimum polymer yield of 94%, a minimum specific viscosity of 1.4 and a monomer content of 5-7%. The equations for the initiation and chain propagation processes are given. Blocks weighing 35 kg were produced on the laboratory apparatus, and more than 3 tons of high-molecular polycaproatamide (Kaprolon V) were obtained under plant conditions. The starting materials were: technical caprolactam with a permanganate number of at least 400 sec, a maximum volatile alkali content of 1 ml, hardening temperature = 68.8C, sodium caprolactam (as initiator), acetylcaprolactam (as activator), and an inert gas (argon and nitrogen), containing not more than 0.05% oxygen. The operations of Kaprolon V production, conditions of its mechanical processing, and

Card 1/2

ACCESSION NR: AP4043321

mechanical and dielectric properties are given. Kaprolon V obtained in the mold has a high molecular weight and 1.5 times as high a strength as that of the ordinary caprolactam. The geometry of a cutter for these plastics is shown. Kaprolon V can be used as a raw material for machine parts. Some Kaprolon machine parts (gears) had a lifetime of 2 years under plant conditions. The method is therefore of great economic significance. Orig. art. has: 2 figures and 2 chemical equations.

ASSOCIATION: none

SUBMITTED: 00

DATE SEL: 01Sep64

ENCL: 00

SUB CODE: OC, MT

NO REF SOV: 007

OTHER: 006

Card 2/2

ACCESSION NR: AP4028550

S/0191/64/000/004/0033/0037

AUTHOR: Vlasova, K. N.; Rudy\*k, M. A.; Nosova, L. A.; Pichugin, A. N.;  
Ivanova, G. P.

TITLE: Antifriction compositions based on filled polyamides

SOURCE: Plasticheskiye massy\*, no. 4, 1964, 33-37

TOPIC TAGS: antifriction composition, polyamide, filled polyamide, graphite  
filled polyamide, talc filled polyamide, physical property, mechanical  
property, electrical property

ABSTRACT: The antifriction and other physical, mechanical and electric properties of filled polyamides were investigated, as well as their application in structural work. The following polyamides were tested: (T=talc, G=graphite, Mo=molybdenum disulfide, Ba=barium sulfate, numbers=% filler) Polyamide 68, 68-T20, 68-T40, 68-Mo5, 68-Ba5, Capron, K-T10, K-Mo1.5, K-Ba10, K-G10

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ACCESSION NR: AP4028550

AK-7, AK-7T10, AK-7T20, AK-7T40, AK-G5. Even small amounts of antifriction additives help form fine crystalline structures in polyamides thus improving their antifriction properties. The impact strength is lowered proportionally to the amount of filler, but polyamides have such high impact strength that even with 40% filler the strength is still 20-30 kg cm/cm<sup>2</sup>, which exceeds that of epoxide and phenol-formaldehyde resins. The antifriction fillers increase the modulus of elasticity of polyamides as evidenced by increased rigidity and decreased deformation under load. Filled polyamides have a smaller residual deformation and elastic lag than the unfilled. The water absorption of polyamides is lowered in proportion to the filler content. The good dielectric properties of polyamides are not decreased by fillers, therefore filled polyamides can be used in the electric industry for reinforced and thin walled articles. Specifically, P-68 and 68-T10 polyamides may be used in the -60 to +100C, 10-1600 hertz ranges. AK-7T20 and 68-T30 show especially good antifriction properties and can replace nonferrous metals, their alloys and other materials, for instance in mechanical fittings in hydro installations. Their coefficient of wear is 20-35% less than that of DSP-B (a phenol-formaldehyde); the increased elasticity of the filled polyamides makes them very desirable replacements for the latter for working

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ACCESSION NR: AP4028550

surfaces, for instance in the construction of runners where the use of AK-7T20 (cemented to the metal with epoxy ED-5) reduces metal requirements and costs. The coefficients of friction for AK-7 and AK-7T20 are 19 and 61% less than for DSP-B at 500 kg /linear cm. , and 6 and 20% less at 2000-2500 kg /running cm. A method was developed for preparing antifriction working surfaces on large metal articles comprising coating the cleaned and degreased metal with polyamide granules (low molecular polyamide with a small amount of epoxy resin as binder) and curing at room or elevated temperature. The work load of friction machines with polyamide surfaces may be further increased by the use of lubricants. Injection molded articles, even of complex configuration, may be made from filled polyamides. Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 00

ATD PRESS: 3050

ENCL: 00

SUB CODE: HT

NO REF SOV: 002

OTHER: 001

3/3

Card

VLASOVA, K.N.; ANTROPOVA, N.I.; DOBROKHOTOVA, M.K.; LYADYSEVA, Ye.K.;  
PAVLOVA, G.I.

Copolymers of  $\epsilon$ -caprolactam and mixture of  $\epsilon$ -methylcaprolactam  
isomers. Plast. massy no.2:8-9 '66. (MIRA 19:2)

L 39716-66 ENP(j)/EWT(m)/T IJP(c) RM/WW/GD-2

ACC NR: AP6007965

(N)

SOURCE CODE: UR/0191/66/000/003/0020/0021

AUTHOR: Dobrokhotova, M. K.; Vlasova, K. H.; Lyadyshova, Ye. K.; Kutuzova, S. L.

ORG: none

TITLE: Polyamide prepared from decanedicarboxylic acid and hexamethylenediamine

SOURCE: Plasticheskiye massy, no. 3, 1966, 20-21

TOPIC TAGS: polyamide, organic synthetic process, impact strength, absorption coefficient, dielectric permeability, tensile strength, bending strength, specific density

ABSTRACT: The authors studied the synthesis and properties of the polyamide PDG obtained by a reaction of decanedicarboxylic acid with hexamethylenediamide. Polymerization was performed at 260°C. By the common industrial method the reagents formed a salt that melted at 182-184°C. Synthesized PDG melted at 218-221°C, contained <1.5% of monomer or low-molecular-weight products, and a 0.5% solution of PDG in "tricresol" had a specific viscosity of 0.7-0.8. The thermomechanical curve of PDG is a typical curve of crystalline compounds (Fig. 1). The physicochemical properties of PDG, determined on samples molded at 250°C and then at 35-40°C and conditioned for 3 days in a 65% relative humidity atmosphere at 20-22°C, are tabulated below:

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UDC: 678.675'4'4



L 39716-66

ACC NR: AP6007965

3

Properties	PDG	Resin no. 68
Density, g/cm <sup>3</sup>	1.09	1.10
Impact strength, kg·cm/cm <sup>2</sup>	110-120	110-120
Strength, kg/cm <sup>2</sup>		
bending	860-920	800-900
tensile	450-500	450-500
Water absorption, %		
1 hour boiling	0.45-0.6	1.0
maximal	~2	~3
$\rho_s$ , ohm	$6.3 \cdot 10^{15}$	$4.6 \cdot 10^{14}$
$\rho_s$ , ohm · cm	$2.5 \cdot 10^{15}$	$7.1 \cdot 10^{14}$
$t_g$ at 10 <sup>6</sup> cps	0.016	0.03
Dielectric permeability	3.9	4.2

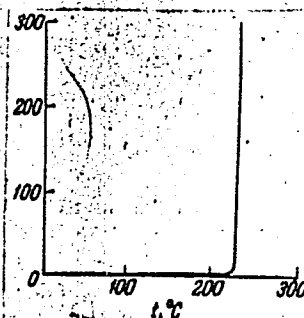


Fig. 1

Decanedicarboxylic acid was prepared by L.I. Zakharkin and V.V. Korneva. Orig. art. has: 1 fig. and 1 table.

SUB CODE: 07,20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2 *gh*

L 20805-66 EWP(j)/EWT(m)/T IJP(c) RM/WW

ACC NR: AP6005944

(A)

SOURCE CODE: UR/0191/66/000/002/0008/0009

AUTHORS: Vlasova, K. N.; Antropova, N. I.; Dobrokhotova, M. K.; Pavlova, G. I.; Lyadysheva, Ye. K.

ORG: none

TITLE: Copolymers of  $\epsilon$ -caprolactam and mixture of isomers of C-methylcaprolactam

SOURCE: Plasticheskiye massy, no. 2, 1966, 8-9

TOPIC TAGS: copolymerization, elasticity, lactam, isomer, copolymer, solid mechanical property, elasticity

ABSTRACT: A mixture of isomers of C-methylcaprolactam (I), b.p. 124-126C/5--6 mm, was copolymerized with  $\epsilon$ -caprolactam in the presence of alkaline (metallic sodium) or acid (orthophosphoric acid) catalysts. Physical and mechanical properties were investigated. Melting point and specific viscosity of the copolymer are lowered with increased proportion of I, as illustrated in Fig. 1. Copolymers containing more than 40% of I are soluble in alcohol and can be used for preparation of films. The product is more highly elastic than polycaprolactam. It can be manufactured from the melt by a continuous method on machines used for manufacturing film PK-4, making its production even more attractive.

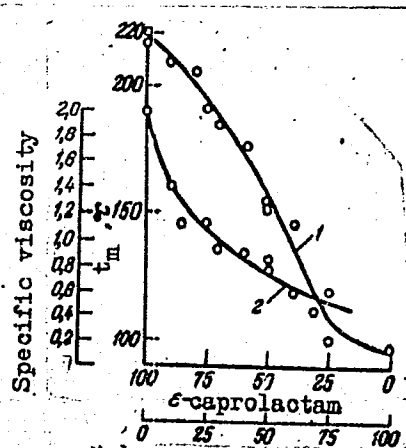
Card 1/2

UDC: 678.675

L 20805-66

ACC NR: AP6005944

Fig. 1. Melting point  $t_m$  and specific viscosity of copolymers as functions of the ratio of  $\epsilon$ -caprolactam and mixture of C-methylcaprolactam (weight %); 1 - melting point; 2 - specific viscosity.



Orig. art. has: 1 table and 2 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 002

Card 2/2

L 13358-66

(A)

ENT(m)/ENP(j)/T/ETC(m)

WW/RM

ACC NR: AP6002474

SOURCE CODE: UR/0191/66/000/001/0014/0016

AUTHORS: Zakoshchikov, S. A.; Vlasova, K. N.; Zubareva, G. M.; Krasnova, N. M.; Ruzhentseva, G. A.

ORG: none

TITLE: On the synthesis of polyamide acids for the production of thermostable polyamides 15.44.55

SOURCE: Plasticheskiye massy, no. 1, 1966, 14-16

TOPIC TAGS: polymer, resin, polyamide, polyamide compound, amino plastic, duren

ABSTRACT: The reaction of 4,4'-diaminodiphenylmethane (DFM) with pyromellitic dianhydride (PMA) was studied to extend the currently available information on the role of impurities in the original materials on the molecular weight of polymerized polyamide acids, and, in particular, to determine the suitability of pyromellitic dianhydride (PMA) for the synthesis of high-molecular weight polyamide acids. The specific viscosities of dimethylformamide solutions of the synthesized polymers were determined as functions of temperature and of the method used for obtaining PMA. The experimental results are presented in tables and graphs (see Fig. 1). It was found that dimethyl formamide is an inert solvent for PMA up to a temperature of 100C. A suggestion is made that the decrease in the molecular weight of the polyamide acids at temperatures above 50C is probably connected with the partial hydrolysis of the acids.

Card 1/2

UDC: 678.675

L 13358-66

ACC NR: AP6002474

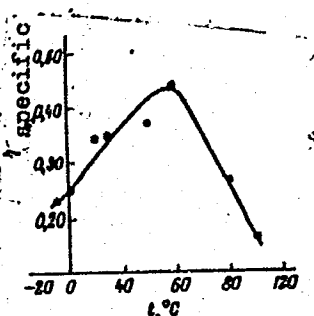


Fig. 1. Dependence of the specific viscosity of polyamide acid solutions on the reaction temperature.

It is concluded that the most suitable pyromellitic dianhydride for the synthesis of polymers was the one obtained from the oxidation of bis-(chloromethyl)-m-xylo and from the vapor-phase oxidation of durene. The authors thank professor M. I. Farberov, docent A. V. Bondarenko, and V. P. Borshchenko for the samples of pyromellitic anhydride. Orig. art. has: 2 tables and 3 graphs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 018

07/

Card 2/2

BELYY, V.A.; VLASOVA, K.N.; ANTROPOVA, N.I.; RUTTO, R.A.; KESIEL'MAN, V.N.;  
LOSPV, V.P.; DERVOYED, N.A.; SAMOKHVALOV, A.V.

"Savrolan," the new material for antifriction coatings. Plast.massy  
no.6:48-50 '65. (MIRA 18:8)

ANTROPOVA, N.I.; VLASOVA, K.N.; PAVLOVA, G.I.; SAMOKHVALOV, A.V.; SHAROVA,  
A.V.; PARLASHKEVICH, N.Ya.

Study of the anion polymerization of epsilon-caprolactam by the  
changes in the melt resistance. Plast. massy no.1:12-14 '65.  
(MIRA 18:4)

TODER, I.A.; RUMYANTSEVA, N.I.; VLASOVA, K.N.; NOSOVA, L.A.

Using bearing bushings with a thin layer of polyamide coatings in  
rolling mill mechanisms. Plast. massy no.3:64-65 '65. (MIRA 18\*6)



ДУБРОВИЧОВА, М.И.; ВЛАСОВА, Е.Н.; ДУКОВ, А.А.; АНТОНОВА, Л.Т.

The SN "Koprola." Plast. massy no. 0102 '64.

(MIRA 1964)

VLASOVA, K.N.; DOBROKHOTOVA, M.L.; DUKOP, A.A.

Metal reinforced glass plastics. Plast.massy no.10:44-46 '64.  
(MIRA 17:10)

TITLE: Kaprolon / a new material for antifriction coatings

ABSTRACT: The properties of a new material, "Kaprolon," antifriction coating thickness has been studied as well as the microhardness, wear resistance, and ad-

applied by a vibration-hardened test method. The high hardness and good adhesion

Card 1/2

L 53668-65  
ACCESSION NR: AP5014694

(maximum at 230—250C) of such coatings from Kaprolon make it a suitable material for preventing wear of friction parts. Test-stand experiments using distilled water as a lubricant showed that Kaprolon coatings exhibit greater wear resistance than ordinary polyacrylate coatings. Service tests exceeding 18 months in the field confirmed the reliability of the coatings.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MT,FP

NO REF SOV: 007

OTHER: 001

ATD PRESS: 4011

184  
Card 2/2

VLASOVA, K.N.; ANTROPOVA, A.N.; MATKOVSKIY, A.N.; KOSTENKO, Yu.N.;  
ZASLAVSKIY, N.N.; SAMOCHVALOV, A.V.; SOKHOR, F.Z.; NECHESOV, V.A.  
[deceased]

Rapid polymerization of caprolactam. Plast. massy no.8:18-19  
'64. (MIRA 17:12)



ACCESSION NO. AP5006170

two-layer coating combining adhesive and antistatic properties. The service journals.

ASSOCIATION: None

SUBMITTED: 00

ENCLOSURE

SUB CODE: MT, 17

NO REF SOV: 006

OTHER: 000

Card

100  
12

ACCESSION NR: AP4009829

S/0191/64/000/001/0014/0016

AUTHORS: Vlasova, K. N.; Morozov, N. A.; Dobrokhotova, M. K.;  
Nosova, L. A.; Ivanova, G. P.

TITLE: Finely dispersed polyamides and antifriction coatings there-  
from

SOURCE: Plasticheskiye massy\*, no. 1, 1964, 14-16

TOPIC TAGS: polyamide, powder, spray coating, fluidized  
bed coating, antifriction coating, polyamide coated ferrous metal,  
polyamide coated nonferrous metal, coating property, coating

ABSTRACT: Finely dispersed polyamide powders of 100 to 300 microns  
can be prepared by dissolving the polyamide in caprolactam at 180-  
200C, cooling, and adding water to precipitate the polyamide and  
remove the solvent. The process can be batch or continuous. The  
polyamide may be applied by gas flame spray coating. Antifriction  
fillers such as graphite, disulfides or molybdenum may be added  
during spray coating as long as their particle size is less than that  
of the polyamide. Pigments may also be added. The coatings on

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ACCESSION NR: AP4009829

steels, aluminum and its alloys, and iron and cast iron have adhesive strengths of 400-500 kgs/cm; on nonferrous metals the adhesive strength is less. Articles of various configurations thus coated have good antifriction properties, attractive appearance, are stable to organic acids, alkali solutions and mineral oils, but do peel in aqueous media. The polyamide powders can also be applied in a fluid bed. Polycapraamide coatings on aluminum-steel bearings give significantly greater wear resistance (2 times) and abrasion resistance (20-50 times) than babbit B-83 or alloy ASM. The cost of restoring articles by coating with polyamides is 5 times less than the cost of new articles. Orig. art. has: 2 figures.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 10Feb64

ENCL: 00

SUB CODE: MA, ML

NR REF SOV: 002

OTHER: 005

2/2

Card

ANTROPOVA, N.I.; VLASOVA, K.N.; DOBROKHOTOVA, M.L.

Stabilization of polyamide film materials. Plast. massy no.8:  
16-20 '63. (MIRA 16:8)

(Polyamides)

VLASOVA, K.N.; DOBROKHOTOVA, M.L.; AKUTIN, M.S.; DUKOR, A.A.; CHUDINA, L.I.

Glass plastics based on low molecular polyamide and epoxide resins.  
Plast.massy no.7:13-16 '63. (MIRA 16:8)  
(Glass reinforced plastics) (Polyamides) (Epoxy resins)

ACCESSION NR: AP3003302

S/0191/63/000/007/0013/0016

AUTHOR: Vlasova, K. N.; Dobrokhotova, M. L.; Akutin, M. S.; Dukor, A. A.;  
Chudina, L. I.

TITLE: Glass-reinforced plastics based on low-molecular-weight polyamide  
and epoxy resins

SOURCE: Plasticheskiye massy, no. 7, 1963, 13-16

TOPIC TAGS: plastics, glass-fabric-reinforced plastics, epoxy resins, phenolic  
resin, organosilicon resin, glass fabric, curing agents, polyamide resins, water  
resistance, dielectric properties, EN-L, L-18, L-19, L-20, ENF 15/1, ENK-1  
TFE-9, GVS-9.

ABSTRACT: Because low-molecular-weight polyamide resins—oligoamides—  
are nontoxic curing agents and plasticizers for epoxy resins, formulations based  
on such resins and amides were studied as binders for glass-fabric-reinforced

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ACCESSION NR: AP3003302

plastics (RP). Resins EN-L (copolymer of ED-5 epoxy resin with an oligoamide (L-18, L-19, or L-20) based on linseed oil esters), ENF15/1 (phenolic-resin-modified EN-L), and ENK-1 (modified TFE-9 organosilicon resin cured with oligo-amides) were tested as binders, and glass fabrics ASTT(b) 16/10, satin 8/3, and satin TS 8/3, as reinforcements. The best physicommechanical properties were exhibited by RP reinforced with the satin fabrics. AGM-3, GZ11/12, and GVS-9 finishes were tested. GVS-9 was the most effective in enhancing the RP's binder-to-reinforcement adhesion and water repellency. Study of the effect of the three oligoamides and of different amide/epoxy ratios on the properties of RP showed that, depending on the amide used, the optimum amide concentration in the binder varies from 20 to 50%. Hence, desired properties of RP can be obtained by selecting the appropriate amide and ratio. Study of manufacturing techniques revealed that RP molded at 100C and less than 5 kg/cm<sup>2</sup> have good physicommechanical properties and can be produced in cheap metal-plastic molds or by contact molding. For example, RP molded at 2 kg/cm<sup>2</sup> had an impact strength of 259—415 kg cm/cm<sup>2</sup>, a Brinell hardness of 49.8—60.9 kg/mm<sup>2</sup>, a bending

Card 2/3

ACCESSION NR: AP3003302

strength of 6010—7010 kg/cm<sup>2</sup>, a tensile strength of 5840—6480 kg/cm<sup>2</sup>, and an elastic modulus in bending of (1.6—2.00) 10<sup>5</sup> kg/cm<sup>2</sup> and in tension of (3.65—3.7) 10<sup>5</sup> kg/cm<sup>2</sup>. Additional heat treatment can further improve water resistance, impact strength, and hardness 10—15%. Pot life of the binder can best be increased by the technique of applying amide resin on one side and epoxy resin on the other side of each fabric sheet prior to molding. Two-hour boiling tests indicated that RP based on ENF 15/1 (5% or more phenolic resin) were more water resistant than RP based on EN-L. RP based on ENK-1 had poorer physicomachanical properties than RP based on EN-L but were more heat resistant. The new RP are recommended for use in the electrical and radio industries because of their good dielectric properties.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 30Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 003

OTHER: 001

Card 3/3

LEVANTOVSKAYA, I.I.; YAZVIKOVA, M.P.; DOBROKHOTOVA, M.K.;  
KOVARSKAYA, B.M.; VLASOVA, K.N.

Thermal oxidative degradation and stabilization of some  
polyamides. Plast. massy no.3:19-23 '63. (MIRA 16:4)

(Polyamides) (Oxidation)

VLASOVA, K.N.; ANTROPOVA, N.I.; AKUTIN, M.S.; SAMOKHVALOV, A.V.; SHAROVA, A.V.

"Kaproton" (caprolan). Plast.massy no.1:18-19 '63. (MIRA 16:2)  
(Nylon)



VLASOVA, K.N.; CHUDINA, L.I.; ZACHESOV, Yu.N.

Low molecular weight polyamide resins. Plast.massy no.2:14-18  
'62. (MIRA 15:2)  
(Resins, Synthetic) (Polyamides)

ANTROPOVA, N.I.; VLASOVA, K.N.; PAVLOVA, G.I.; SAMOKHVALOV, A.V.; SHAROVA, A.V.

High molecular weight polycaproyamide. Plast.massy no.7:17-19  
'61. (MIRA 14:7)  
(Hexanamide)

158080

S/081/62/000/011/045/057  
E202/E192

AUTHORS: Vlasova, K.N., and Matskevich, M.K.

TITLE: Polyamide resins

PERIODICAL: Referativnyy zhurnal, Khimiya, no.11, 1962, 591,  
abstract 11 P 63. (In the Symposium: "Plastmassy v  
mashinostr." ("Plastics in Machinery"), M., Mashgiz,  
1959, 19-28).

TEXT: Mechanical and dielectric properties of the  
indigenous polyamide resins designated for constructions and  
also polyamide resins used as varnishes, laminates, films and  
glues, are described. Methods of processing polyamide resins  
and the fields of their application are briefly described.

[Abstractor's note: Complete translation.]

Card 1/1

✓B

YERMOLINA, A.V.; IGONIN, L.A.; NOSOVA, L.A.; FAREROVA, I.I.; VLASOVA, K.N.

Relation between the mechanical properties of crystalline polymers  
and their supermolecular structures. Dokl.AN SSSR 138 no.3:614-  
615 My '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut plasticheskikh mass. Predstavleno  
akademikom V.A.Karginym.

(Polymers)

15.8080

15.8510

AUTHORS:

24043  
S/020/61/138/003/015/017  
B103/B208  
Yermolina, A.V., Igonin, L.A., Nosova, L.A., Farberova, I.I.,  
and Vlasova, K.N.

TITLE:

Relationship between mechanical properties of crystalline  
polymers and their supermolecular structures

PERIODICAL:

Doklady Akademii nauk SSSR, v. 138, no. 3, 1961, 614 - 615

TEXT: The authors compared some structural and mechanical properties of the industrial polyamide resin 68 (polyhexamethylene sebacic amide), from which among others slide bearings are produced and which has a high resistance to wear. They attempt to clarify the importance of the local order of the segments ("degree of crystallinity") and of the secondary supermolecular structures to the macroscopic properties of polymers. 4 x 6 x 55 mm samples were cast from the resin under pressure by means of the JM-3 (LM-3) casting device, and subjected to heat treatment in inert media (silicon oils) at different temperatures and for various periods of times. The "degree of crystallinity" was determined from the integral intensities of the characteristic interferences on the intensity curve of the specimen. These curves

Card 1/4

24013

S/020/61/138/003/015/017  
B103/B208

Relationship between ...

were recorded on the basis of the dispersion angles of X-rays on the YPC-50- W(URS-50-I) X-ray diffractometer. The spherulite structure of the polyamide was confirmed by a microphotograph of the polished surface of the sample which has previously been etched with tricresol. The metallurgical MIM-8 (MIM-8) microscope with a 1000-fold magnification was used for this purpose. For each series of samples the reciprocal value of wear (resistance to wear) was determined by means of the sieve-type testing machine (of the Grasselli type). The heat treatment was applied at 150 and 190°C for 15 - 30 min for each of these temperatures. The conversion of the initial samples with a hexagonal cell to the triclinic form, as described in publications, was accomplished already after heating for 15 min. Further heat treatment gradually completed the X-ray picture. It was characterized by a marked increase of the interferences (100) and (010), and, accordingly, also of the "degree of crystallinity". The second appearance of the interference of the hexagonal cell between the reflexes (100) and (010) of the triclinic cell on prolonged heating was striking. After 8 hr at 190°C and after 12 hr at 150°C the crystallinity ceased to increase. There were no recognizable structural changes observed during a heat treat-

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24043

S/020/61/138/003/015/017

B103/3208

Relationship between ...

ment of up to 30 hr. The spherulite structure of the polyamide was found to be more sensitive to a change in the method of the thermal treatment than the "degree of crystallinity". The size of the spherulites markedly increased (from 1 to 5  $\mu$ ) on short heating; some structures, however, were still larger. After 8 hr heating at 190°C and after 10 hr at 150°C a gradual destruction of spherulite structures set in, and after 30 hr they could not be observed any longer on the surface of the sample. A specific correlation between the "degree of crystallinity" and resistance to wear of the plastics could not be confirmed. It may be seen from these preliminary studies that samples with a uniform size of spherulite structures (2 - 3  $\mu$ ) have the highest resistance to wear. It is concluded therefrom that homogeneity, size, and fine structure of the supermolecular structures play an important role in the wear of the polyamide. It is therefore of considerable interest to explain the effect of the above-mentioned structures on the mechanical properties, when studying the relationships between these properties and the structure of crystalline polymers. The authors express their gratitude to V. A. Kargin, Academician, for discussion of the results, and S. B. Ratner for his assistance in this work. There are 9 references: 7 Soviet-bloc and 2 non-Soviet-bloc.

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Relationship between ...

24043  
S/020/61/138/003/015/017  
B103/B208

The three references to English-language publications read as follows:  
Ref. 7: A. Keller. Proceedings of the International Conference of  
Crystal Growth, N. Y., 1958 ; Ref. 8: I. Sandeman, A. Keller, J. Polym.  
Sci., 19, 401 (1956); Ref. 9: G. Bunn, E. Garner. J. Proc. Roy. Soc.,  
London, A 189, 39 (1947).

ASSOCIATION: Nauchno-issledovatel'skiy institut plasticheskikh mass  
Akademii nauk SSSR (Scientific Research Institute of  
Plastics of the Academy of Sciences USSR)

PRESENTED: January 6, 1961, by V. A. Kargin, Academician

SUBMITTED: December 15, 1960

Card 4/4



S/122/60/000/004/006/014  
A161/A130

AUTHORS: Vlasova, K.N., Candidate of Technical Sciences; Nosova, L.A.,  
Engineer

TITLE: Some properties of polyamides as machine material

PERIODICAL: Vestnik mashinostroyeniya, no. 4, 1960, 33 - 39

TEXT: The article presents general information in digest form on the chemical nature of polyamide resins, their properties and behavior, application for machine parts. The reviewed information sources are non-Soviet with one exception. Practical recommendations are given for proper applications. The Soviet polyamides used for machine parts and bearing linings are capron, П -68 (P-68), AK7 (AK7), П -6 (P-6), and softer for sealings and linings П -54 (P-54), П -548 (P-548) and ПКРТ-3 (PKRT-3). The explanation of trade names is the following. Figures in P-6, P-68, P-54 and P-548 mean the quantity of methylene groups (CH<sub>2</sub>) in raw material; e.g., in P-548 the Figure 5 shows the group number in a molecule of caprolactam, 4 in a molecule of adipic acid, and 8 in one of sebacic acid; in AK-7, the Figure 7 indicates the percent content of caprolactam (K) in adipic acid (A). The physical properties of the Soviet polyamides are given in tables.

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Some properties of polyamides as machine material

S/122/60/000/004/006/014  
A161/A130

The recommendations concern service temperatures, stress relief by boiling water or steam, permissible pressures, etc., spraying for coatings on metal. It is mentioned in conclusion that many Soviet plants use capron waste in the form of fiber, hosiery, gates and risers. It is only natural that plants supplying such waste do not standardize it, and the plants using it reprocess the waste by primitive means in autoclaves using nitrogen containing oxygen and sometimes in high quantities; molten material is kept molten for too long, injected into molds too slowly. Unstable mechanical properties and uneven monomer content are the result. Besides, in many investigations (mostly of capron) the test specimens are prepared from waste or secondary capron, and this leads to wrong conclusions and recommendations. The author stresses the economic importance of proper polyamide use. There are 10 figures, 4 tables and 7 references: 1 Soviet-bloc and 6 non-Soviet bloc. The references to the English-language publications read as follows: "Modern Plastics", no. 1, 1955, v. 33, 158-164; "Machine Design", no. 5, 1956, v. 28, 95-99; "Machine Design", no. 4, 1956, v. 28, 95-105; "Journal SPE", no. 2, 1957, v. 13.

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2h7L6

S/191/61/000/007/004/010  
B101/B215

15.8020

AUTHORS: Antropova, N. I., Vlasova, K. N., Pavlova, G. I.,  
Samokhvalov, A. V., Sharova, A. V.

TITLE: High-molecular polycaproamide

PERIODICAL: Plasticheskiye massy, no. 7, 1961, 17-19

TEXT: At present, polycaproamide is synthesized in industry by hydrolytic polymerization. The process takes 16-18 hr at 250°C. The polymer has an intrinsic viscosity of 0.6-0.8 and contains 10-12 % of substances soluble in water. The polymerization of caprolactam in the presence of alkaline catalysts was studied on the basis of western publications. The authors aimed at stabilizing the viscosity of the polymer. 1) Polymerization in the presence of metallic sodium or KOH (US Patent 2251519 (1941)). In the presence of these catalysts, commercial caprolactam polymerizes at 220°C. The reaction is exothermic and takes no more than 10-15 min. A 0.5 % solution of the obtained polymers in tricresol had an intrinsic viscosity of 1.8-3.0. The impact strength varied between 80 and

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High-molecular polycaproamide

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B101/B215

133 kg·cm/cm<sup>2</sup>, and the Brinell hardness between 7.8 and 13.5. After casting under pressure, the impact strength was reduced. The polymers were thermally unstable, and their intrinsic viscosity during heating was reduced to 250-260°C. Stabilization according to the patent was not successful. The granulated polymers were therefore treated with dilute mineral acid (dilute acetic acid showed no stabilizing effect) and washed. After heating up to 250-260°C subsequent polycondensation and formation of a network occurred. To eliminate the action of the residual mineral acid, the granules were treated with dilute NH<sub>3</sub>. After that, the intrinsic viscosity of the polycaproamide heated up to 250-260°C remained stable for 4-6 hr (0.81). This polymer was suited for extruding and other processes. Now, the impact strength was 125-155 and the Brinell hardness 12.7-15.2. A unit for continuous production of 4 kg of polycaproamide per hr was designed. 2) On the basis of papers by O. Wichterle, Sebenda et al. (Makromol. Chem. 35, 174, (1960) Czechoslovakian Patent 93016 (1957)), acetyl caprolactam (ACL) was used as a co-catalyst besides Na or KOH. The physico-mechanical properties of the polymers depended upon the ratio of the catalyst components. With KOH/ACL = 2:1 the intrinsic viscosity was 2.07-3.1, the impact strength 150-160, and the Brinell hardness 24.0-26.0.

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2h7h6

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B101/B215

# High-molecular polycaproamide

For KOH/ACL = 1:1 the corresponding values are 1.3-2.05, 100-125, 15-17, respectively; for KOH/ACL = 2:3: 0.9-1.1, 86-96, 9-10. For Na/ACL = 2:1: intrinsic viscosity 2.11-3.36; impact strength 110-160; Brinell hardness 24-26.6; and for Na/ACL = 1:1: 2.19-2.23, 125-135, 11.0-17.0. Polymerization was conducted in molds of aluminum, galvanized iron, stainless steel, or aluminum foil. Stainless steel proved to be most suitable. Cogwheels very resistant to abrasion were made from polymers by mechanical processing. In the presence of reinforcing material such as metal plates (Al, Fe, Cu, and steel), graphite, molybdenum sulfide, ceramics, microlite, fluoroplast-4, 45-50 % glass fiber or glass fabric, the course of polymerization was normal and the metal inserts in the ready-made block were well fixed due to considerable shrinkage (5 %). 3) On the basis of a paper by S. Chrzczonowicz (Makromol. Chem., 38, 159 (1960), Polish Patent 41536 (1958)) the polymerization of caprolactam was examined in the presence of Na and CO<sub>2</sub>. Also in this case, the polymerization took place below the melting point of the polymer. Time of reaction: 35-60 min; yield of the polymer: 85-90 %; viscosity: 2.0-4.5; melting point: 215-225°C; impact strength: 140-165. Brinell hardness: 15.5-22.5. The polymer differed largely from that obtained by ACL addition. There are 3 tables

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High-molecular polycaprosamide

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and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

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RODIVILOVA, L.A.; BATAIOVA, L.G.; VIASOVA, K.N.; KANAVETS, I.F.

Effect of the length and nature of a side alcohol radical on the  
structural and mechanical properties of methylolpolyamides. Plast.  
massy no. 6:14-19 '60. (MIRA 13:11)  
(Polyamides) (Alcohols)

VLASOVA, K.N.; CHUDINA, L.I.; ZAVEL'GEL'SKIY, L.M.; GULYAYEVA, S.I.; BAKHAREVA,  
L.T.

Use of thermoplastic glue based on low-molecular polyamide resins in  
shoe manufacture. Kozh.-obuv. prom. 6 no.8:30-31 Ag '64.  
(MIRA 17:10)



YERMOLINA, A.V.; RODIVILOVA, L.A.; VLASOVA, K.N.; IGONIN, L.A.

X-ray study of the extent of molecular ordering in methylolpolyamide  
resins. Plast.massy no.11:58-59 '60. (MIRA 13:12)

(Resins, Synthetic) (Polyamides)

89917

S/191/61/000/002/004/012  
B118/B203

15.8450  
158110

AUTHORS:

Vlasova, K. N., Akutin, M.S., Dobrokhotova, M. L.,  
Yemel'yanova, L. N.

TITLE:

Polyamide epoxy resins as initial products for  
glass-reinforced plastics

PERIODICAL: Plasticheskiye massy, no. 2, 1961, 17 - 22

TEXT: No data have been published as yet on the use of polyamide resins as binding agents for glass-reinforced plastics because of their poor adhesion to glass. Methylol polyamide resins are distinguished by very high adhesive power, but glass-reinforced plastics made with them are insufficiently hard and of low resistance to water. On the basis of the good adhesion of epoxy resins, their stability against water, their hardness and brittleness, the authors considered it to be convenient to combine these resins with the high-elastic polyamide resins, and to examine whether the resulting polymer can be used as a binding agent. An attempt of obtaining a homogeneous polymer by mixing solutions of epoxy, polyamide, and methy-

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89917

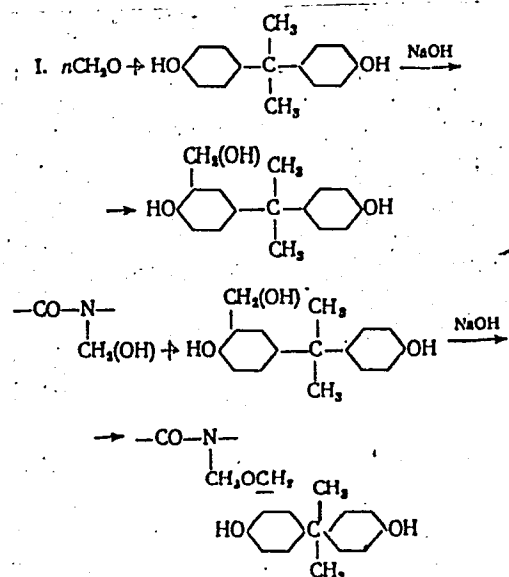
S/191/61/000/002/004/012  
B118/B203

Polyamide epoxy resins ...

lol polyamide resins was unsuccessful since the mixture did not solidify on heating. Only by synthesizing the polyamides via the intermediate stage of methylol polyamides and reacting them with diphenylol propane and epichlorohydrin it was possible to obtain a grafted polymer. On heating, the resulting resin passes over into an unmelttable and insoluble state. Condensation and hardening of resins were studied in different variations; the reactions of diphenylol propane with formaldehyde, of epichlorohydrin with formaldehyde, and of diphenylol propane with methylol polyamide were investigated. The studies confirmed the assumption of the character of reaction of these resins. The analysis showed that the following scheme holds for methylol polyamides resulting from the reaction of formaldehyde with polyamides via the methylol groups with the epoxy groups of the epoxy resin and with the methylol groups of the diphenylol propane radical in the epoxy resin:

Card 2/6

## Polyamide epoxy resins ...

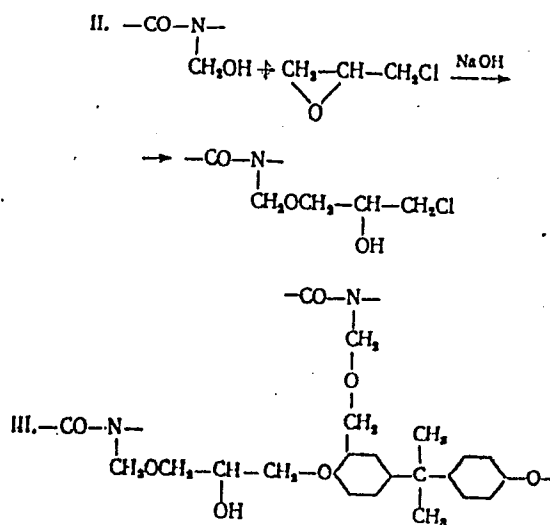


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B118/B203

✓

Polyamide epoxy resins ...

To determine the optimum conditions, the authors synthesized resins with various component ratios. The polymerization rate, the adhesive power to various materials, the stability against water, and the content of methyl-, methoxy-alkyl-, epoxy-, and hydroxyl groups were determined for the resins synthesized. Table 6 gives the physico-mechanical properties of glass-reinforced plastics obtained with the aid of modified polyamide resins. Laminated plastics on the basis of synthetic fibers and polyamide epoxy binding agents can be used for lightweight, stable building materials since they show good elasticity and durability as well as good dielectric properties. Among all modifications, the type ПЭМ-2 (PEM - 2) shows the best properties: it can be recommended as a building and heat-insulating material; it remains intact in the temperature range of  $\pm 200^{\circ}\text{C}$  maintaining its sufficiently high physical and mechanical properties. There are 2 figures and 10 tables.

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Polyamide epoxy resins ...

Физико-механические свойства стеклопластиков на основе модифицированных полиамидных							
1 Смола	2 Содержание связующего %	3 Удельная ударная вязкость кг·см/см²	4 Предел прочности, кг/см²			5 Твердость по Бринеллю кг/мм²	6 Теплостойкость по Мартенсу °C
			а при изгибе	б при сжатии	в при растяжении		
9 Метилполлиамидная ПФФ-2/10	25	250—270	1250—1350	1500—1900	2500	22,5	150
10 Полиамидная 54/21	25	260	1300	1800	3000	15—18	130
		240—300	1000—1300	3000	2700		
11 Модифицированная полиамидо-фенольная МПФ-1	25	250	1100	4000	3000	20—25	160—180
		260—330	1900—2200	2000—3000	2700—3300		
12 Модифицированная полиамидо-полиэфирная МПЭС-1	25	300	2000	2500	3000	25—28	160—170
		200—250	1600—2400	2000—3000	2000—3000		
13 Модифицированная полиамидо-меламино-формальдегидная	25	210	2200	2700	2700	40—45	180—200
		—	1200—1700	2200—3800	1500—2200		
			1500	3000	1900		

Legend to Table 6: 1) resin; 2) content of binding agent; 3) specific

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Polyamide epoxy resins ...

resilience,  $\text{kg.cm/cm}^2$ ; 4) limit strength a) on bending; b) on compression;  
c) on elongation; 5) Brinell hardness; 6) thermostability according to  
Martens; 7) water adsorption after 30 days; 8) modulus of elasticity,  
 $\text{kg/cm}^2$ ; 9) methylol polyamide PEF-2/10; 10) polyamide 54/21; 11) modi-  
fied polyamide phenolic MPF-1; 12) modified polyamide polyester MPS-1;  
13) modified polyamide melamine formaldehydic

СМОН	Таблица 6					
	Водопо- глощение за 30 суток %	$\delta$ Модуль уп- ругости $\text{кг/см}^2$	-	$14 \cdot 10^4$	-	$12,5 \cdot 10^4$
	6-8					$18 \cdot 10^4$

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RAYBURD, S.M.; RODIVILOVA, L.A.; VLASOVA, K.N.; SHABADASH, A.N.; IGONIN, A.A.

Study of the solidification of methylol polyamide resins. Plast.  
massy no.7:20-22 '60. (MIRA 13:10)  
(Resins, Synthetic) (Polyamides)



VLASOVA, K.N.; NOSOVA, L.A.; KOZLOV, D.V.; PLATONOV, V.F.

Use of polyamides in the friction parts of motor vehicles. Plast.  
massy no.1:38-46 '61. (MIRA 14:2)

(Motor vehicles) (Polyamides)  
(Bearings (Machinery))

VLASOVA, K.N.; AKUTIN, M.S.; DOBROKHOTOVA, M.L.; YEMEL'YANOVA, L.N.

Polyamide-epoxide resins and glass plastics derived from them.  
Plast.massy no.2:17-22 '61. (MIRA 14:2)  
(Resins, Synthetic) (Glass reinforced plastics)

88318

S/191/60/000/002/005/012  
B027/B058

15.8112

AUTHORS: Vlasova, K. N., Rodivilova, L. A.

TITLE: Methylol Polyamide Glues

PERIODICAL: Plasticheskiye massy, 1960, No. 2, pp. 19-23

TEXT: The authors studied various types of methylol polyamide glues which are produced on the basis of methylol polyamide resins and widely used for industrial purposes. In contrast to ordinary polyamides, methylol polyamide polymers and glues are hardenable. The hardeners are usually added to the glues before use, in an amount of from 1 to 2.5% and up to 10% related to the weight of solid resin. The thermal resistivity of glues hardened in this way is thus increased so that they withstand a temperature of 150°C for longer periods, are insoluble in alcohol and alcohol - water mixtures and resistant against boiling water. The introduction of side groups into the polymer greatly improves the properties of the common polyamide resins. Various materials may be glued with methylol polyamides, such as ferrous and nonferrous metals, silicate and organic glass, leather, fabrics, ceramics, concrete, wood, and certain plastics. The most widely

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## Methylol Polyamide Glues

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B027/B058

used glue of the type ПФЭ 2/10 (PFE 2/10), which was studied in greatest detail, is a 25 to 30% alcoholic aqueous solution of methylol polyamide with a viscosity of from 30 to 40 poises. The glue is easy to be used, nontoxic, and stable even at low temperatures; the coatings are heat resistant for up to 200 hrs at temperatures of from 130 to 150°C. This highly elastic product with great adhesive power is of special importance for the leather and shoe industry; by saturation with the glue and/or doubling, the durability of low-quality leather is increased by 100 to 150% or 30 to 90%. The respective experiments were made in cooperation with the ЦНЭЛКОЖ (TsNELKOZh). The gluing of the upper parts of shoes instead of stitching them is also new. The glue of the type ПФЭ 2/10 (PFE 2/10) saves work in the polygraphic trade, since books are not stitched together, but glued with it. With this glue, a world atlas in an edition of 30,000 copies was produced without seams by the Minskaya kartograficheskaya fabrika (Minsk Cartographic Factory). The glue МПФ-1 (MPF-1) has a specially high adhesive power compared with metals. The glue МПЭ-21 (MPE-21), developed by the НИИПМ (NIIPM) jointly with the НИИРП (NIIRP) serves for rubber gluing on the basis of organofluorine, nitrile- and styrene rubber. The glue types МПЛ-20 (MPL-20), МПС-1 (MPS-1)

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